



**REVIEW OF HIGHER EDUCATION  
TUITION LEVELS**

**From The Office Of State Auditor  
Claire McCaskill**

**Report No. 2003-40  
May 1, 2003  
[www.auditor.state.mo.us](http://www.auditor.state.mo.us)**

**PERFORMANCE AUDIT**



Office of  
Missouri State Auditor  
Claire McCaskill

May 2003

## **State universities and colleges need more cost containment measures to balance increasing tuition**

Providing higher education at an affordable price has become increasingly difficult with recent state budget pressures and large decreases in state funding. Average tuition for Missouri's 4-year public colleges and universities is the highest among the Big 12 states and second highest among the contiguous states. (See page 5) In addition, a national report ranked Missouri's recent tuition increases among the highest. (See page 4) This audit reviewed in-state undergraduate tuition levels at the state's thirteen 4-year public colleges and universities and analyzed trends in annual tuition, state support, enrollment and operations between 1998 to 2003.

### **Decreased state higher education funding increased tuition**

A national study showed Missouri had the highest negative correlation between state appropriations and tuition. This negative correlation means when state funding decreased, tuition almost always increased. In 2002 and 2003, withholdings for most 4-year schools totaled 18 percent of original appropriations. In fiscal year 2003, the state cut 10 percent of state funding from the core fiscal year 2002 budget amount. Audit analysis showed Missouri's higher education spending at 10 percent of total state spending in fiscal year 2001, which was 1 percent below the national average. (See page 8)

### **Increased school spending also affected tuition levels**

For fiscal years 1998 through 2002, total expenditures increased 23 percent for the 13 schools. During the same period, inflation measured 15 percent by the Higher Education Price Index (HEPI), the index used by most colleges and universities to measure inflation. College and university officials attributed much of the increased spending to areas beyond their control, such as a more than 20 percent increase in employee benefit costs, increased enrollment, technology and utilities. (See page 9)

School officials said enrollment figures should be considered when analyzing growth in unrestricted expenditures. Audit analysis showed, between 1998 and 2002, aggregate unrestricted expenditures per full-time equivalent student for all 13 schools increased by 10 percent, which was 5 percentage points below the HEPI's rate for the same time period. In addition, administrative costs make up 8 percent of total unrestricted spending. Audit analysis showed administrative cost increases ranged from 17 percent to 71 percent at various schools. (See page 12)

YELLOW SHEET

### **Department's academic program reviews did not effectively analyze instruction costs**

Schools spend about 44 percent of total unrestricted spending on instruction. Between 1998 and 2002, unrestricted instruction spending exceeded HEPI inflation growth for 4 of 13 schools. Department of Higher Education staff require schools to submit results of their academic program, or campus-based, reviews on a 5-year cycle; but auditors found these reviews did not have enough data to analyze cost-effectiveness. One school official said schools may not diligently conduct these reviews because school officials did not sense department officials used the reviews at all. Department officials said they did not have enough funding to thoroughly analyze academic program reviews submitted by each school. (See page 13)

### **State and school officials reassess how to contain academic costs**

Because of recent budget constraints, department and school officials have started new initiatives to assess the cost-effectiveness of various academic programs. The audit discusses cost analysis efforts underway by the department, University of Missouri and Southwest Missouri State University. The department's program - Results Improvement Initiative - will assess the cost-efficiency of targeted programs. University of Missouri created a task force to review academic programs and, specifically, the instruction costs associated with programs having low enrollment and/or completions. The task force report said traditional program reviews were not sufficient in the current limited resource environment and recommended the university regularly conduct viability audits, not just during down economic times. (See page 13)

Department officials agreed with the audit's two recommendations: to help schools assess cost-containment efforts and to collect data to determine the cost-effectiveness of existing academic programs. (See page 15)

**All reports are available on our website: [www.auditor.state.mo.us](http://www.auditor.state.mo.us)**

# REVIEW OF HIGHER EDUCATION TUITION LEVELS

## TABLE OF CONTENTS

	<u>Page</u>
<b>STATE AUDITOR'S REPORT .....</b>	<b>1</b>
<b>RESULTS AND RECOMMENDATIONS.....</b>	<b>2</b>
More Cost Containment Measures Are Needed To Balance Increasing Tuition Levels .....	2
Background .....	2
Scope and Methodology .....	4
Missouri's tuition increases ranked among the nation's highest in 2003 .....	4
Decreases in higher education funding affected tuition levels .....	8
Schools above-inflation spending also affected tuition levels.....	9
DHE and schools are reassessing the need for containing academic costs .....	13
Conclusion .....	14
Recommendations.....	15
 <b>APPENDIXES</b>	
I. TUITION LEVELS BY SCHOOL.....	17
II. HIGHER EDUCATION STATE FUNDING.....	19
III. COMPARISON OF UNRESTRICTED EXPENDITURES .....	20

---

## ABBREVIATIONS

CPI	Consumer Price Index
DHE	Department of Higher Education
HEPI	Higher Education Price Index
FTE	Full-time Equivalent
UM	University of Missouri



**CLAIRE C. McCASKILL**  
**Missouri State Auditor**

Honorable Bob Holden, Governor  
and  
Quentin Wilson, Interim Commissioner  
Department of Higher Education  
Jefferson City, MO 65109

The rising cost of tuition at Missouri's 4-year public colleges and universities has received considerable attention. Higher tuition levels create the perception college is not affordable and discourages some prospective students from continuing their education. As the cost of college increases, more families and students find the cost beyond their financial means. Because of the importance of higher education, this report focuses on tuition increases and factors affecting tuition levels.

We found the average tuition has risen faster than inflation and personal income measures. This situation has occurred because of decreased state funding and above-inflation spending by institutions. While some schools are beginning to initiate cost containment efforts, the Department of Higher Education has not collected academic program productivity and cost data. With such data, the department would be better equipped to help school governing boards assess the cost-effectiveness of academic programs. As a result, opportunities to lower costs and lessen pressure to raise tuition may be lost. We make recommendations to the department on these matters.

We conducted our work in accordance with applicable standards contained in *Government Auditing Standards*, issued by the Comptroller General of the United States, and included such tests of the procedures and records as were considered appropriate under the circumstances.

Claire McCaskill  
State Auditor

The following staff contributed to this report:

Director of Audits: Kirk R. Boyer  
Audit Manager: Jeannette Eaves, CPA  
Auditor-in-Charge: Daniel Reeb  
Audit Staff: Carl Zilch

## **RESULTS AND RECOMMENDATIONS**

### **More Cost Containment Measures Are Needed To Balance Increasing Tuition Levels**

The average educational fee (tuition<sup>1</sup>) to attend a Missouri 4-year public college or university (school) has increased faster than inflation and personal income for the past 5 years. At least two factors have influenced schools to pass increasing costs on to students and their families through higher tuition. One, state funding of higher education has been reduced in recent years, and may not be restored for many years to come. The second is above-inflation spending by the schools. Many schools have begun taking a variety of actions to reduce costs. However, the Department of Higher Education (DHE) does not collect information and data for assessing the cost-effectiveness of academic programs—the largest component of higher education spending.

#### **Background**

The Department of Higher Education, headed by a coordinating board, evaluates school performance, and carries out other goals and administrative duties. Authority to set tuition levels at Missouri's 4-year public colleges and universities rests with the governing board of each school. Although the department does not have the authority to set tuition levels, it does have statutory responsibility to conduct reviews to ensure Missouri's higher education system responds to the state's needs and is focused, balanced, cost-effective, and characterized by high quality programs.<sup>2</sup>

Additionally, the DHE has the responsibility to recommend to the governing board of any higher education institution in the state the development, consolidation or elimination of programs, degree offerings, physical facilities or policy changes where that action is deemed by the coordinating board as in the best interests of the institutions themselves and/or the general requirements of the state.<sup>3</sup> The DHE has the authority to collect information and data from the schools for any purpose deemed appropriate including information on the approximately 4,000 academic programs listed in the state's official program inventory.<sup>4</sup>

In fiscal year 2002, state funding for higher education totaled \$946 million.<sup>5</sup> Of this amount, approximately \$712 million was appropriated to the 4-year colleges and universities. Figure 1 shows higher education's total revenue for public 4-year colleges and universities for fiscal years 1998 to 2003. This revenue is used to meet the goals and administrative responsibilities for the state's higher education system. In the fall of 2001, approximately 102,400 undergraduate students attended Missouri's 4-year public colleges and universities, of which 85 percent of the students were Missouri residents, 12 percent were non-residents, and the remaining 3 percent were international students.

---

<sup>1</sup>The term "tuition", when used in this report, is defined as the required fees an undergraduate student taking 15 semester credit hours would be charged annually.

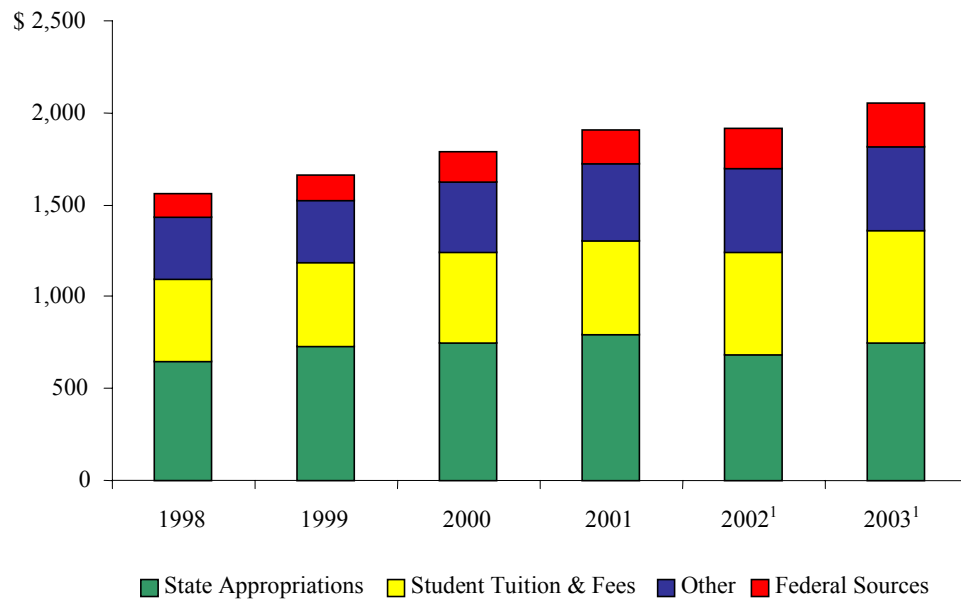
<sup>2</sup> Section 173.030(7), RSMo 2000

<sup>3</sup> Section 173.030(2), RSMo 2000

<sup>4</sup> 6 CSR 10-4.021

<sup>5</sup> Includes general revenues, lottery proceeds, federal funds and various other sources of funds.

**Figure 1: Total Revenue by Source for 4-Year Public Colleges and Universities  
(Dollars in millions)**



<sup>1</sup>Estimate  
Source: Prepared by SAO based on DHE revenue data.

Financial aid has been integral to whether or not a higher education was affordable to many students. The primary forms of financial aid are student loans and grants. A national survey<sup>6</sup> found that while student financial aid hit a record \$90 billion in the United States in 2002, student loans now constitute 54 percent of student aid compared to only 47 percent 10 years ago. Conversely, grants now represent 39 percent of the aid compared to 50 percent 10 years ago. Student loans actually increase students' higher education cost because students have to repay both principal plus interest. On the other hand, grants, which do not have to be repaid, help reduce the actual cost of their education.

The affordability of higher education was studied in Missouri in the late 1990's. The Commission on the Affordability of Higher Education report<sup>7</sup> stated:

"Affordability opens the doors of higher education to those who are qualified. Missouri and its higher education community must find ways to ensure financial access to higher education for all qualified Missouri residents.

It is difficult to gather and invest in the funding necessary to create and increase quality in higher education as described above while keeping the price of attendance down so Missourians can attend the state's

<sup>6</sup>Trends in State Aid 2002, The College Board, New York, NY.

<sup>7</sup>Toward an Affordable Future, Report of the Missouri Commission on the Affordability of Higher Education, (December 9, 1999).

postsecondary institution of their choice. While there is no one policy or set of recommendations that can definitively address this dilemma, the commission members believe both quality and affordability are essential. Whichever policy direction the higher education system moves toward in terms of enhancing quality, it must be grounded in a commitment to affordability. Likewise, policies on higher education affordability must be equally grounded in an ongoing commitment to a quality educational experience."

## **Scope and Methodology**

We reviewed in-state undergraduate tuition levels at the thirteen 4-year public colleges and universities in Missouri.<sup>8</sup> Our review of tuition levels, and the factors affecting tuition, focused on identifying trends in annual tuition, state appropriations, enrollment and operating expenditures between fiscal years 1998 to 2003. We did not attempt to determine the appropriate tuition levels for the schools.

Most of the data we reviewed was obtained from DHE including the 1999 Commission on the Affordability of Higher Education report. While most of the data presented in this report through fiscal year 2001 is actual data, some data presented for fiscal years 2002 and 2003 may be based on budget estimates. We also interviewed officials at five of the thirteen schools—Harris-Stowe State College in St. Louis, Southeast Missouri State University in Cape Girardeau, Southwest Missouri State University in Springfield, Truman State University in Kirksville and the University of Missouri in Columbia—to obtain their insights on factors affecting tuition levels and efforts to reduce costs.

To give some context on tuition levels at Missouri schools, we obtained data on a comparison group of 4-year public colleges and universities in Big 12 conference states—Colorado, Iowa, Kansas, Nebraska, Oklahoma and Texas—and Missouri's other contiguous states—Arkansas, Illinois, Kentucky and Tennessee. This data was obtained from nationally-recognized organizations such as the National Center for Public Policy and Higher Education, the Chronicle of Higher Education, and the Center for Higher Education and Educational Finance. During our interviews and research, we found there are various perspectives on the appropriate peer schools, or states, for each of the Missouri schools. For example, the University of Missouri believes the Association of American Universities is the best peer group for its four campuses. Officials with other schools considered market competitors as peers, while officials at one school said they have not yet found a school that is a true peer.

## **Missouri's tuition increases ranked among the nation's highest in 2003**

According to a national report, Missouri's tuition increase from school year 2001-2002 to 2002-2003 ranked among the highest increase nationally.<sup>9</sup> Table 1 shows Missouri's average annual tuition increased 16 percent between these school years. Over the 5-year period ended 2002-

---

<sup>8</sup>A list of the thirteen 4-year public colleges and universities can be found in Appendix I.

<sup>9</sup>College Affordability in Jeopardy: A Special Supplement to National Crosstalk, The National Center for Public Policy and Higher Education, Winter 2003.



2003, Missouri's average annual tuition increased 37 percent. Five other states within the comparison group experienced the same, or higher, percentage increases during this period. In both 2000 and 2002, Missouri received a D+ grade on its affordability of higher education from the National Center for Public Policy and Higher Education.<sup>10</sup>

**Table 1: Percentage Increases in Average Tuition Levels by School Year**

State	1998-99	2001-02	2002-03	Percent increase	
				1-year	5-year
Illinois	\$3,350	\$4,013	\$4,576	14	37
<b>Missouri<sup>1</sup></b>	<b>3,321</b>	<b>3,908</b>	<b>4,547</b>	<b>16</b>	<b>37</b>
Iowa <sup>1</sup>	2,893	3,468	4,140	19	43
Tennessee	2,499	3,397	3,656	8	46
Arkansas	2,613	3,365	3,633	8	39
Nebraska <sup>1</sup>	2,518	3,024	3,361	11	33
Colorado <sup>1</sup>	2,815	3,126	3,359	7	19
Kentucky	2,428	3,000	3,327	11	37
Texas <sup>1</sup>	2,517	2,969	3,231	9	28
Kansas <sup>1</sup>	2,386	2,656	3,020	14	27
Oklahoma <sup>1</sup>	1,878	2,242	2,433	8	30
HEPI				3	16
CPI				3	11
Personal Income <sup>2</sup>				2	11

<sup>1</sup>Big 12 Conference states.

<sup>2</sup>The personal income measure used is real disposable personal income per capita.

Source: Prepared by SAO using tuition data obtained from the Chronicle of Higher Education and Missouri Coordinating Board of Higher Education and real disposable personal income per capita obtained from Regional Economic Models, Inc.

Table 1 shows the ranking of the states by average annualized tuition for the 2002-2003 school year and the 1-year and 5-year percentage increases in average tuition for each state. Missouri's \$4,547 average annualized tuition for 4-year public schools was the highest tuition among Big 12 states, second only to Illinois among the contiguous states and above the national average of \$4,081 for school year 2002-2003. Missouri's average 4-year public schools annual tuition increased 37 percent during school years 1998-1999 to 2002-2003 as compared to the 16 percent increase of the Higher Education Price Index (HEPI) and the 11 percent increases of both the consumer price index (CPI) and personal income in Missouri. Colleges and universities use the HEPI to measure inflation.

According to the Chronicle of Higher Education, average tuition at 4-year public schools nationally was 10 percent higher for school year 2002-2003 than the year before, and the highest 1-year percentage increase in 10 years. For the same period, the Chronicle reported national average annual tuition increased 6 percent at 4-year private schools. Missouri's 16 percent year-

<sup>10</sup>Missouri's grade was based on a review of public and private 2-year and 4-year schools.

to-year increase was higher than national averages by 6 percentage points for 4-year public schools and 10 percentage points for private schools.

The University of Missouri's tuition levels at its four campuses contributed to the state's high average tuition level relative to the comparison group and the national average. The four campuses have the fourth through seventh highest tuition levels among the 44 doctoral and research schools in the Big 12 and contiguous states.<sup>11</sup> The three schools with higher tuition are the University of Illinois campuses in Champaign-Urbana and Chicago, and the Colorado School of Mines, an engineering school. The University of Missouri, with its four campuses, is the only public doctoral and research university in the state.

While some students do not pay full tuition due to scholarships or grants, students and their families usually consider the full tuition cost, or "sticker price," when selecting higher education schools. A high sticker price may deter a student from seeking any information about financial aid programs to help reduce or finance education costs. Additionally, according to the College Board, financial aid for low-income students is not keeping pace with rising tuition. The Commission on the Affordability of Higher Education report stated: "rapid increases in tuition and fees are a reason for concern, especially for underrepresented groups in society. Unchecked, the tuition increases will price many Missourians out of the opportunity for higher education."

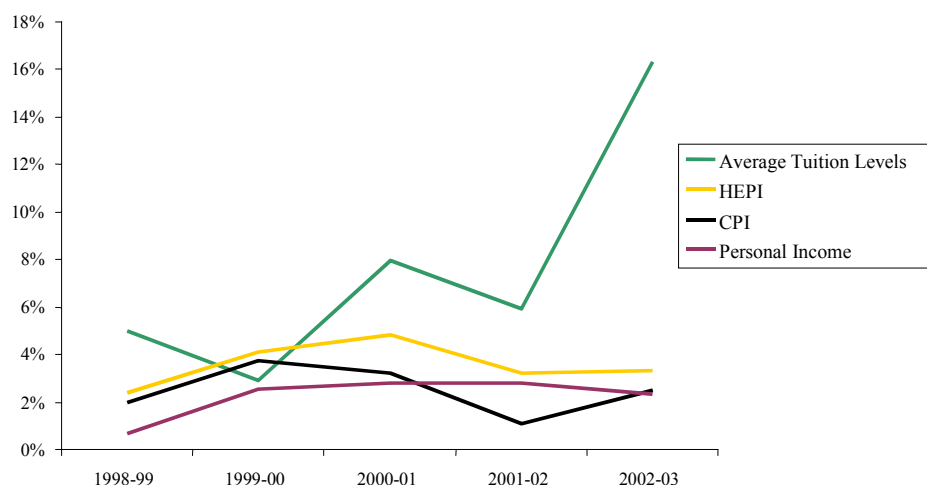
#### Average tuition has outpaced inflation and personal income measures

Missouri's 5-year percentage increase in average annual tuition outpaced both inflation and personal income measures during the same period. Figure 2 compares the growth trends in average tuition to the two inflation measures and personal income. This comparison is based on annual average tuition by school year compared to inflation measures, which are by state fiscal year ending June 30<sup>th</sup> and personal income which is by calendar year ending December 31<sup>st</sup>.

---

<sup>11</sup>Doctoral/Research Universities (Extensive and Intensive) published by the Carnegie Foundation for the Advancement of Teaching classifies these schools. Appendix I shows the tuition levels from these schools.

**Figure 2: Annual Percentage Increase in Average Tuition Levels for Missouri 4-Year Public Colleges and Universities Compared to Inflation and Personal Income**



Source: Prepared by SAO based on inflation data obtained from the University of Illinois which estimated 2001-2002 and 2002-2003 and real disposable personal income per capita data obtained from Regional Economic Models, Inc.

Since 1997, the University of Missouri's policy was to match tuition increases to any HEPI increases. But only in two of the last five school years (1999-2000 and 2000-2001) has the university increased tuition similar to the HEPI, with the remaining increases above the index increase. For example in the fall of 2002, tuition (including a \$9 per hour surcharge) increased 13 percent, while HEPI is estimated to have increased only 3.2 percent for fiscal year 2002.

#### Tuition levels at regional schools also outpaced inflation and income

Average tuition for Missouri's 4-year regional schools<sup>12</sup> increased 45 percent between school years 1998-1999 and 2002-2003. The increase was significantly higher than the 16 percent increase in HEPI and the 11 percent increases in CPI and real disposable personal income per capita.

School year 2002-2003 annual tuition increased significantly at several regional colleges and universities in Missouri. For example, Missouri Southern State College increased annual tuition by 36 percent to \$3,886, and Harris-Stowe State College increased annual tuition by 32 percent to \$3,760. All schools in Missouri had double-digit percentage increases in tuition, with the exception of Lincoln University, which increased tuition by 9 percent. However, Lincoln University's tuition increased 66 percent over the past 5 years, second only to Missouri Southern State College's 67 percent increase during this time period.

<sup>12</sup>For the purpose of this report, the term "regional schools" is defined as all public 4-year schools, except those with Carnegie classification of doctoral/research and medical sciences.

Missouri's 4-year regional school average tuition for school year 2002-2003 was the second highest among the comparison group states, with the exception of Iowa.<sup>13</sup> Table 2 ranks the states' regional schools by average tuition in school year 2002-2003 and shows the 1-year and 5-year increases for each state.

**Table 2: Regional Colleges and Universities Average Tuition Levels by School Year**

State	1998-99	2001-02	2002-03	Percent increase	
				1-year	5-year
Iowa	\$2,860	\$3,440	\$4,118	20	44
<b>Missouri<sup>1</sup></b>	<b>2,795</b>	<b>3,421</b>	<b>4,056</b>	<b>19</b>	<b>45</b>
Illinois	2,802	3,463	3,796	10	35
Arkansas	2,430	3,268	3,517	8	45
Tennessee	2,400	3,193	3,442	8	43
Nebraska	2,333	2,816	3,156	12	35
Kentucky	2,242	2,750	3,093	12	38
Texas	2,226	2,858	3,089	8	39
Kansas	2,320	2,549	2,743	8	18
Colorado	2,251	2,527	2,677	6	19
Oklahoma	1,810	2,141	2,329	9	29
HEPI				3	16
CPI				3	11
Personal income				2	11

<sup>1</sup>See Appendix I for the tuition levels for each regional school in Missouri.

Source: Prepared by SAO based on Chronicle of Higher Education and DHE data.

### Decreases in higher education funding affected tuition levels

Significant withholdings in state higher education funding was one factor influencing increasing tuition levels. Most of the university and college officials we interviewed said state support is the primary factor in determining tuition levels. Several university officials provided us a national study showing Missouri with the highest negative correlation between state appropriations and tuition changes out of 47 states analyzed.<sup>14</sup> This negative correlation means when appropriations decrease tuition almost always increases.

In fiscal years 2002 and 2003, state funding for higher education in the state of Missouri was substantially lower than previous years due to state budget pressures. Most of the 4-year schools experienced state budget withholdings totaling approximately 18 percent of original appropriations. A significant portion of the withholdings came at the end of fiscal year 2002, after the schools had already expended some of the anticipated state funds, resulting in the need for several of the schools to use reserve funds. In fiscal year 2003, the state cut 10 percent of state funding to higher education from the core fiscal year 2002 budget amount. Based on

<sup>13</sup>The University of Northern Iowa, the only regional school in Iowa, reported its 2002-03 tuition as \$4,118, which skews Iowa's average. Additionally, both Truman State University and Southwest Missouri State University reported annual tuition higher than the University of Northern Iowa.

<sup>14</sup>Postsecondary Education Opportunity, The Pell Institute for the Study of Opportunity in Higher Education.

current state revenue projections, additional cuts may be made to state funding for higher education.

According to the National Association of State Budget Officers, each of the comparison group states had a higher percentage of funding for higher education than Missouri.<sup>15</sup> In fiscal year 2001, Missouri spent \$1.1 billion on higher education, representing 6 percent of the state's \$17 billion budget. Of this amount, \$925 million was general revenue spending, which accounted for 12 percent of total general revenue spending for the year. Missouri's general revenue spending was 1 percent less than the national average (13 percent) in fiscal year 2001.

However, Missouri's percentages are not comparable because 41 states included tuition and fees in their reporting of total state spending on higher education, and Missouri did not. To make Missouri more comparable with other states, we added the \$597 million of tuition and fees paid to Missouri's 2-year and 4-year public schools in fiscal year 2001. This adjustment showed Missouri's higher education spending increased to 10 percent of total state spending in fiscal year 2001, which was 1 percent below the 11 percent national average.<sup>16</sup>

The reduction in state funding of higher education is forcing schools to either use reserves, reduce costs or increase revenue to balance their budgets. Because of the reduction in state funding in fiscal year 2002, and to prepare for fiscal year 2003 reductions, officials at the five schools we visited stated they were reducing costs and raising tuition. Officials stated cost reduction measures included:

- leaving vacant positions unfilled,
- freezing faculty and support staff salaries,
- reducing student labor,
- deferring new equipment purchases,
- increasing faculty credit hours of teaching,
- reducing library access and acquisitions,
- reducing operating expenses (e.g., supplies, travel, printing, etc.), and
- offering early retirement for faculty and administrators.

In addition to cost reductions and increases in tuition, officials at several of the schools said they consumed most of their reserve funds to offset a portion of the state funding loss.

### **Schools above-inflation spending also affected tuition levels**

Above-inflation spending by higher education schools was another factor related to increasing tuition levels. In fiscal year 2002, the 4-year schools spent approximately \$1.9 billion on education and general operations.<sup>17</sup> Of the \$1.9 billion in total education and general operations

---

<sup>15</sup>Appendix II compares the states' higher education funding by total budget and general revenue funds.

<sup>16</sup>It is probable that including tuition and fees from the 9 states that did not include them may raise the national averages and weaken Missouri's position in comparison.

<sup>17</sup>The 4-year public schools also have expenditures on auxiliary enterprises such as dormitories, hospitals, etc. which are funded by revenues generated by the enterprise. In fiscal year 2001, expenditures on these auxiliary enterprises totaled \$616 million for the thirteen schools.

expenditures, \$1.5 billion were unrestricted and \$420 million were restricted.<sup>18</sup> For fiscal years 1998 through 2002, total expenditures increased 23 percent for the thirteen schools. During the same period inflation measured by the HEPI and the CPI equaled 15 percent and 10 percent, respectively. The growth in total expenditures was due to a 17 percent increase in unrestricted expenditures and a 48 percent increase in restricted expenditures.

All 4-year schools, except the University of Missouri, experienced increases in overall unrestricted expenditures at, or above, the 15 percent growth in HEPI during the 5-year period. The increases at, or above, inflation ranged from 15 percent at Truman State University to 30 percent at Northwest Missouri State University. The University of Missouri's unrestricted expenditures increased 13 percent during this period, which is 2 percent below the rate of inflation. College and university officials we interviewed attributed much of the above-inflation spending to areas that are beyond their control, including: mission enhancement funding appropriated by the general assembly; increased enrollments; and increases in health insurance, technology, and utilities.

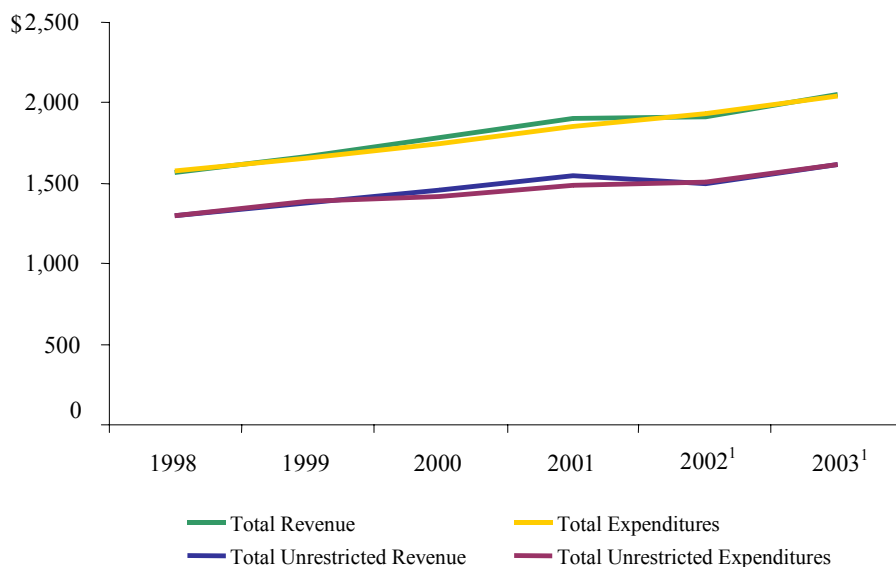
Tuition is influenced by spending as schools strive to balance expenditures with revenues, according to a Williams College (Massachusetts) professor, who specializes in higher education economics. As Figure 3 depicts, total expenditures continued to increase as total revenues increased from fiscal years 1998 to 2003.<sup>19</sup> The figure also shows the same relationship between unrestricted expenditures and revenues. These relationships are consistent with the Williams College professor's equation for public higher education—price plus subsidy equals cost. Simply stated, schools strive to keep this equation intact by increasing tuition (price) when state funding (subsidy) decreases and spending (cost) increases, but have begun turning their attention to cost containment.

---

<sup>18</sup>Restricted expenditures are generally spending restricted by the terms of an outside donor or supporting agency.

<sup>19</sup>Our review did not include capital expenditures. Higher education economists believe a full understanding of costs should include long-term debt financing for construction of new facilities and the value of existing lands and buildings. Theories on how to capture these costs and the study of their impact on tuition are evolving and beyond the scope of this review.

**Figure 3: Total and Unrestricted Revenue and Expenditure Trends, Fiscal Years 1998 to 2003 (Dollars in millions)**



<sup>1</sup>Estimate

Source: Prepared by SAO based on DHE revenue and expenditure data.

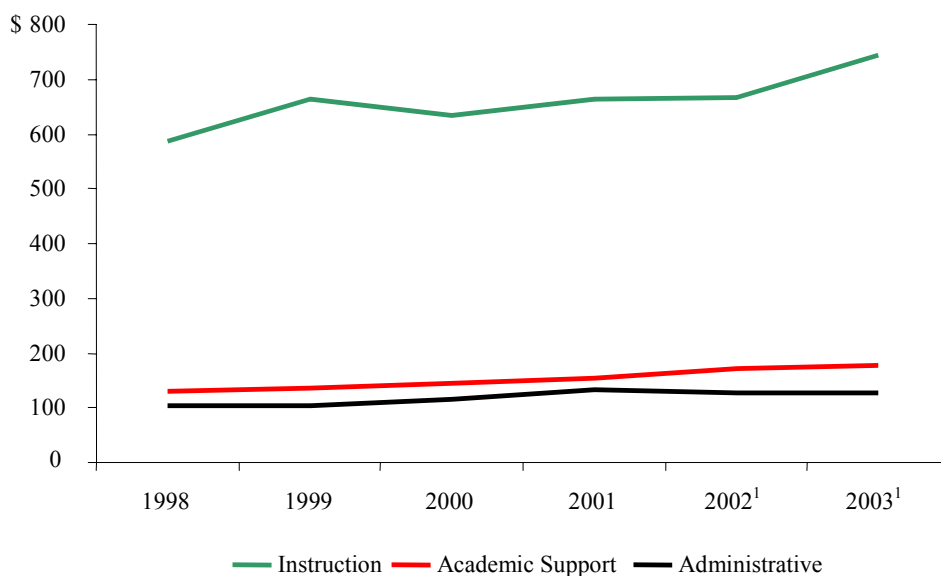
For fiscal year 2002, aggregate unrestricted spending on instruction for all thirteen schools accounted for 44 percent of total unrestricted spending in nine reported categories.<sup>20</sup> The next highest category of spending is academic support which accounted for 11 percent of total spending in fiscal year 2002. Administrative spending accounted for 8 percent of total unrestricted spending. Figure 4 shows the instruction, academic support, and administrative spending from fiscal years 1998 to 2003.

The instruction expenditure category is primarily spending associated with on-campus and off-campus instruction credit, including general academic instruction, occupational and vocational instruction, special session instruction, community education, preparatory and adult basic education, and remedial and tutorial instruction conducted by the teaching faculty for the institution's students. Faculty salaries are a large component of instruction expenditures.

The academic support expenditure category captures the operating costs of the schools' libraries, museums, educational media services, ancillary support, academic administration and development. Institutional support, or administrative spending, captures expenditures for the day-to-day operational support of the institution, including expenditures for general administrative services, executive direction and planning, legal and fiscal operations, and public relations/development.

<sup>20</sup>Schools report expenditures in the following nine categories: instruction, research, public service, academic support, student services, institutional support, operation and maintenance, scholarships, and mandatory/non-mandatory transfer.

**Figure 4: Instruction, Academic Support and Administrative Spending Trends, Fiscal Years 1998 to 2003 (Dollars in millions)**



<sup>1</sup>Estimate  
Source: Prepared by SAO based on DHE expenditure data.

School officials said enrollment figures should be considered when computing growth trends in unrestricted expenditures. Aggregate unrestricted expenditures per full-time equivalent (FTE) student for all thirteen schools increased by 10 percent for the 5-year period 1998 to 2002. The increase was 5 percentage points below the inflation rate if measured by HEPI, and at the inflation rate if measured by CPI, for the same period. If the University of Missouri is excluded, the aggregate 5-year increase for the regional schools was 16 percent or 1 percent above inflation if measured by HEPI and 6 percent above inflation if measured by CPI, for the same period. Our analysis of unrestricted expenditures per FTE is conservative because most schools have the capacity to absorb enrollment increases with less impact on average costs than a straight cost per FTE analysis indicates.

#### Administrative costs at some schools had above-inflation increases

While the overall administrative costs increased somewhat as shown in Figure 4, administrative costs per FTE student increased faster than inflation at six of the 13 schools—Harris-Stowe State College, Missouri Southern State College, Missouri Western State College, Central Missouri State University, Northwest Missouri State University and Lincoln University. The increases ranged from 17 percent at Central Missouri State University to 71 percent at Missouri Southern State College.



## **DHE and schools are reassessing the need for containing academic costs**

Given the state funding cuts, some schools are taking a wide variety of actions to reduce or contain costs by improving the efficiency of operations. Because instruction spending is the largest expenditure, schools are considering the cost of academic programs. For fiscal years 1998 through 2002, unrestricted instruction spending exceeded HEPI inflation growth for four of the 13 schools—Harris-Stowe State College, Central Missouri State University, Northwest Missouri State University, and Truman State University.

During the 1980's and early 1990's, the DHE initiated several statewide comprehensive reviews associated with a single discipline, such as biology, at all public institutions. These reviews were time intensive and costly, involving the use of external consultants. In recent years, DHE has conducted more general reviews rather than reviews of specific disciplines.

DHE requires schools to submit the results of their academic program, or campus-based reviews on a 5-year cycle. According to department officials, the 5-year cycle of these reviews is designed to promote program quality, efficiency and effectiveness. However, schools only provide DHE with brief summaries of academic program reviews, which do not include extensive cost information, according to a DHE official. We looked at selected review results from one school and it did not contain sufficient data for an effective cost-efficiency analysis.

One school official we interviewed stated schools may not diligently conduct these reviews since there is a feeling among school officials the department was not using the reviews for any purpose. However, a DHE official said the information from the reviews should be more worthwhile to the schools than to the DHE. The official indicated that due to a lack of funding, the department could not analyze the academic program reviews submitted by each school.

### Examples of efforts underway to review the cost of academic programs

A DHE official said the department only considers the cost-effectiveness of an academic program when it is originally approved. The official explained once a program is approved, the school governing board is responsible for its continued cost-effectiveness. However, DHE and some schools have initiated efforts to consider costs when reviewing academic programs. The cost-cutting initiatives have occurred for a variety of reasons such as compensating for state funding cuts or simply improving the efficiency of operations.

In one effort, DHE officials said the department is initiating a Results Improvement Initiative to implement accurate performance reporting and accountability at Missouri's public colleges and universities. While every academic program will not be reviewed, this initiative will assess the cost-efficiency of targeted programs. DHE staff and institutions are still in the design phase of this initiative and have not identified targeted programs at this time.

In another effort, the University of Missouri created a task force to review academic programs for cost-savings given the fiscal year 2002 and 2003 cuts in higher education funding. A specific charge of the task force was to review the instructional costs associated with programs with low enrollments and/or completions. To assess the productivity of these programs, the task force

reviewed measures such as student credit hours and research and public service funds generated per faculty member. These measures were used to identify non-productive or low enrollment programs that could be consolidated or eliminated. Although the task force fell short in finding the desired \$40 million savings, the task force did have several recommendations which could improve academic program reviews.

In its report, the task force said traditional program reviews were not sufficient in the current environment of limited resources. The task force said the traditional program reviews focused on evaluations to assist in making recommendations for on-going improvements. The task force said the reviews should focus less on program improvement and more on the program's "future viability, return on investment of current academic costs, and contribution to the overall mission of the campus."

To change the review process, the task force recommended the university conduct program viability audits separate and distinct from the traditional program review process. The task force recommended viability audits occur regularly, and not just during down economic times. Viability audits would focus on the cost margin of the academic unit, its quality of programs, and its intrinsic importance and comparative advantage on campus. The task force said these viability audits should be done to enable schools to manage opportunity costs associated with continuing non-critical academic programs.

In a third effort, Southwest Missouri State University officials asked departments to reassess the efficiency and effectiveness of academic programs. In a memorandum dated October 8, 2002, the vice president for academic affairs said a committee made up of faculty administrators will review all academic programs to determine which are central to the university's mission. Using the data the university has recently compiled and other significant information, the committee will assess the need, cost and quality of each program.

## **Conclusion**

Missouri's higher education schools strive to provide students a quality postsecondary education at an affordable price. This balance has been difficult with declining state support given the recent state budget pressures. Average tuition for Missouri 4-year public colleges and universities is the highest among Big 12 states and second highest compared to states contiguous to Missouri.

Because Missouri tuition for 4-year public schools is already higher than other Big 12 states and most neighboring states, it is imperative school officials continue to increase their focus on cost-containment measures to help keep tuition levels affordable for Missouri students. If costs are not contained and tuition continues to rise, the opportunity of some Missouri students to obtain a higher education may be jeopardized.

The DHE has not been actively helping schools determine the cost-effectiveness of existing academic programs. In light of its statutory responsibility, at a minimum, the DHE should collect system-wide data on the cost-effectiveness of academic programs and linkage to each school's mission. This data could be used to identify programs that may not be as cost-effective

as they could or should be. While the DHE cites limited resources as one reason it does not conduct more thorough reviews of academic programs, the reviews have focused mainly on program quality, not cost. To help ensure comprehensive academic program reviews are objective, DHE could coordinate independent teams of professionals from the 13 schools. DHE could then consult with schools' governing boards to consolidate or eliminate any programs that are found to be unproductive. By balancing cost-effectiveness with quality of education, DHE would help ensure accountability in higher education and help schools withstand difficult economic times.

## **Recommendations**

We recommend the Commissioner, DHE:

1. Help schools assess cost-containment efforts by using existing expenditure and revenue data to create and publish trend analyses using ratios and other forms of measurement such as expenditures per FTE student.
2. Collect data to determine the cost-effectiveness of existing academic programs and whether each program meets the school's mission. To accomplish this, the department should ensure these reviews are independently and objectively completed.

## **Department of Higher Education Responses**

1. *While the control and management of Missouri's institutions of higher learning is vested by law with the governing boards of the institutions, DHE agrees the institutions should continue their focus on cost-containment measures as a method to help keep tuition levels affordable. To aid in this endeavor, DHE will make available to the institutions data related to aggregate unrestricted expenditures per full-time equivalent (FTE) student as recommended by the SAO.*

*The DHE recognizes that several mandatory costs borne by an institution of higher learning are increasing at a rate greater than inflation. For example, many institutions are facing annual increases in employee benefit costs that exceed 20 percent; for FY 2004 the University of Missouri anticipates an increase of 27.4 percent. In addition, expenditures necessary to maintain educational quality, such as up-to-date computer facilities, science laboratories, and libraries often require costs that exceed the rate of inflation. Accordingly, comparisons of the rise in higher education costs to the Consumer Price Index (CPI), which measures the price change in a typical basket of household goods and services, can be confusing. Nevertheless, as indicated by the SAO, aggregate unrestricted expenditures per FTE student for all thirteen four-year institutions did not exceed the change in the CPI (and was 5 percentage points below the HEPI) for the five-year period 1998-2002.*

2. *The DHE agrees that cost should be considered when reviewing existing academic programs and their relation to an institution's mission. DHE has initiated the Results Improvement Initiative (RII) to enhance performance data collection and reporting with an emphasis on accountability at Missouri's two-and four-year institutions. RII will aid in the*

*redesign of campus-based reviews of existing academic programs for quality and cost-effectiveness.*

*As indicated by the SAO, the DHE, the University of Missouri, and Southwest Missouri State University have already initiated efforts to consider cost when reviewing academic programs. And although the final decision regarding consolidation or elimination of existing academic programs is vested by law with the governing boards of the institutions, DHE will utilize the RII process and current legislative authority to provide information related to academic program cost-effectiveness and mission relevance to Missouri's public institutions.*

## APPENDIX I

### TUITION LEVELS BY SCHOOL

This appendix shows the tuition levels for Missouri's 4-year colleges and universities, and public 4-year research institutions. Table I.1 lists the tuition levels and percentage increases in tuition for the thirteen Missouri schools.

**Table I.1: Annual Resident Undergraduate Tuition for Public 4-Year Institutions**

Institution	1998-99	2001-02	2002-03	Percent increase	
				1-year	5-year
Harris-Stowe State College	\$2,490	\$2,850	\$3,760	32	51
Missouri Southern State College	2,321	2,866	3,886	36	67
Missouri Western State College	2,660	3,224	4,064	26	53
Central Missouri State University	2,730	3,510	4,110	17	51
Northwest Missouri State University	2,813	3,600	4,120	14	46
Southeast Missouri State University	3,105	3,525	4,035	14	30
Southwest Missouri State University	3,214	3,748	4,274	14	33
Truman State University	3,426	3,832	4,300	12	26
Lincoln University	2,396	3,638	3,968	9	66
University of Missouri (UM) - Columbia	4,439	4,887	5,552	14	25
University of Missouri - Kansas City	4,421	5,036	5,573	11	26
University of Missouri - Rolla	4,522	4,975	5,661	14	25
University of Missouri - St. Louis	4,636	5,116	5,813	14	25
Avg. (all 13 schools)	3,321	3,908	4,547	16	37
Avg. (excluding UM campuses)	2,795	3,421	4,057	19	45
Avg. (UM campuses only)	4,504	5,004	5,650	13	25
HEPI					16
CPI					11
Personal Income					11

Source: Prepared by SAO using DHE data.

Table I.2 ranks the doctoral/research classified institutions in the comparison group states by academic year 2002-2003 resident undergraduate tuition levels.

## APPENDIX I

**Table I.2: Tuition Levels at Public 4-Year Doctoral/Research Institutions**

Institution <sup>1</sup>	1998-99	2001-02	2002-03	Percent increase	
				1-year	5-year
University of Illinois at Urbana-Champaign	\$4,286	\$5,754	\$6,704	17	56
University of Illinois at Chicago	4,482	4,944	6,592	33	47
Colorado School of Mines	5,081	5,621	5,952	6	17
<b>University of Missouri at St. Louis</b>	<b>4,636</b>	<b>5,116</b>	<b>5,813</b>	<b>14</b>	<b>25</b>
<b>University of Missouri at Rolla</b>	<b>4,522</b>	<b>4,975</b>	<b>5,661</b>	<b>14</b>	<b>25</b>
<b>University of Missouri at Kansas City</b>	<b>4,421</b>	<b>5,036</b>	<b>5,573</b>	<b>11</b>	<b>26</b>
<b>University of Missouri at Columbia</b>	<b>4,439</b>	<b>4,887</b>	<b>5,552</b>	<b>14</b>	<b>25</b>
Northern Illinois University	3,921	4,484	5,326	19	36
Southern Illinois University at Carbondale	3,815	4,254	4,865	14	28
Illinois State University	4,083	4,482	4,854	8	19
University of Texas at Dallas	3,217	4,115	4,775	16	48
Texas A&M University at College Station	2,965	3,722	4,748	28	60
University of Arkansas at Fayetteville	3,305	3,956	4,228	7	28
University of Arkansas at Little Rock	3,270	3,825	4,210	10	29
University of Iowa	2,908	3,522	4,191	19	44
University of Nebraska at Lincoln	3,083	3,790	4,145	9	34
Iowa State University	2,912	3,442	4,110	19	41
University of Louisville	2,950	3,796	4,082	8	38
University of Tennessee at Knoxville	2,744	3,784	4,056	7	48
University of Texas at Arlington	2,884	3,709	3,992	8	38
University of Kentucky	3,016	3,706	3,975	7	32
University of Texas at Austin	3,004	3,776	3,950	5	31
Texas Tech University	n/a	3,489	3,867	11	n/a
University of Memphis	2,630	3,470	3,704	7	41
University of Colorado at Boulder	2,969	3,357	3,601	7	21
University of North Texas	2,700	3,271	3,565	9	32
University of Kansas	2,470	2,884	3,484	21	41
Middle Tennessee State University	2,392	3,178	3,442	8	44
Kansas State University	2,544	2,835	3,436	21	35
Colorado State University	2,995	3,252	3,435	6	15
Texas Woman's University	2,346	3,013	3,432	14	46
University of Houston	2,313	3,168	3,348	6	45
East Tennessee State University	2,394	3,119	3,311	6	38
University of Colorado at Denver	2,230	2,934	3,265	11	46
Tennessee State University	2,306	2,969	3,252	10	41
Texas A&M University at Commerce	2,286	2,776	3,224	16	41
University of Kansas Medical Center	2,248	2,539	3,181	25	42
Wichita State University	2,550	2,798	3,085	10	21
University of Texas at El Paso	2,792	3,200	3,036	-5	9
University of Northern Colorado	2,652	2,842	2,984	5	13
Oklahoma State University	2,167	2,779	2,960	7	37
University of Oklahoma at Norman	2,261	2,723	2,939	8	30
Texas A&M University at Kingsville	2,182	2,857	2,862	0	31
Texas Southern University	3,251	2,450	2,712	11	-17

<sup>1</sup> Includes both extensive and intensive doctoral/research institutions as defined by the Carnegie Classification of Institutions of Higher Education.

Source: Prepared by SAO based on Chronicle of Higher Education data.

**HIGHER EDUCATION STATE FUNDING**

This appendix shows Missouri's total spending on higher education compared to the total state budget and to general revenue. Table II.1 shows state funds as a percentage of the total state budget and how Missouri compares to Big 12 and contiguous states.

**Table II.1: Percent of Total State Budget Spent on Higher Education**

<b>State</b>	<b>2000</b>	<b>2001</b>	<b>2002<sup>2</sup></b>
Iowa	24.9	25.3	24.6
Nebraska	22.6	23.7	22.9
Kentucky	18.6	19.4	19.5
Kansas	17.5	17.7	17.3
Oklahoma	17.7	17.1	16.4
Arkansas	15.9	15.4	15.0
Colorado	16.7	14.0	14.4
Texas	14.1	13.2	13.9
Tennessee	12.3	12.4	11.8
Illinois <sup>1</sup>	7.4	7.6	7.5
<b>Missouri<sup>1</sup></b>	<b>6.8</b>	<b>6.4</b>	<b>5.5</b>

<sup>1</sup>All the states except Illinois and Missouri included tuition and fees in their expenditures. If tuition and fees were added to Missouri's expenditures, the percentages would change to 10 percent for fiscal years 2000 and 2001 and 9 percent for fiscal year 2002. Illinois tuition data was not available.

<sup>2</sup>These percentages are based on 2002 estimated tuition.

Source: Prepared by SAO based on the 2001 State Expenditure Report, issued by the National Association of State Budget Officers, Summer 2002.

Table II.2 shows Missouri's general revenue spending on higher education as a percentage of total state general revenue spending compared to Big 12 and contiguous states.

**Table II.2: Percent of Total General Revenue Spent on Higher Education**

<b>State</b>	<b>2000</b>	<b>2001</b>	<b>2002<sup>1</sup></b>
Nebraska	20	22	20
Iowa	18	19	19
Oklahoma	19	18	18
Arkansas	17	17	17
Texas	17	16	17
Colorado	17	16	16
Kansas	15	15	16
Kentucky	15	17	16
Tennessee	15	15	14
Illinois	14	14	14
<b>Missouri</b>	<b>13</b>	<b>12</b>	<b>11</b>

<sup>1</sup>These percentages are based on 2002 estimated tuition.

Source: Prepared by SAO based on the 2001 State Expenditure Report, issued by the National Association of State Budget Officers, Summer 2002.

**COMPARISON OF UNRESTRICTED EXPENDITURES**

This appendix shows similar trends in both the total unrestricted expenditures and these expenditures per FTE student. Table III.1 shows the total unrestricted expenditures by the 13 schools. Table III.2 shows the same expenditures per FTE students.

**Table III.1: Total Unrestricted Expenditures by Fiscal Year (Dollars in thousands)**

<b>Institution</b>	<b>1998</b>	<b>2001</b>	<b>2002</b>	<b>Percent increase</b>	
				<b>1-year</b>	<b>5-year</b>
Harris-Stowe State College	\$11,080	\$13,786	\$13,097	-5	18
Missouri Southern State College	30,750	36,337	36,137	-1	18
Missouri Western State College	29,687	36,428	35,945	-1	21
Central Missouri State University	80,472	95,267	103,721	9	29
Northwest Missouri State University	44,323	59,989	57,698	-4	30
Southeast Missouri State University	67,706	80,412	81,885	2	21
Southwest Missouri State University	126,708	152,116	154,469	2	22
Truman State University	61,780	73,685	70,772	-4	15
Lincoln University	22,634	25,817	29,199	13	29
University of Missouri <sup>1</sup>	819,342	916,328	929,895	1	13
Avg. (all 13 schools)	99,576	114,628	116,371	2	17
Avg. (excluding UM campuses)	52,793	63,760	64,769	4	23
HEPI				3	15
CPI				1	10
Personal Income				3	9

<sup>1</sup>Includes all 4 campuses

Source: Prepared by SAO based on DHE expenditure data.

**Table III.2: Total Unrestricted Expenditures Per FTE Student by Fiscal Year**

<b>Institution</b>	<b>1998</b>	<b>2001</b>	<b>2002</b>	<b>Percent increase</b>	
				<b>1-year</b>	<b>5-year</b>
Harris-Stowe State College	\$10,036	\$13,320	\$12,462	-6	24
Missouri Southern State College	7,351	8,408	8,191	-3	11
Missouri Western State College	7,390	9,021	8,782	-3	19
Central Missouri State University	9,773	11,188	12,267	10	26
Northwest Missouri State University	8,576	11,329	10,761	-5	25
Southeast Missouri State University	10,611	11,888	11,630	-2	10
Southwest Missouri State University	9,747	10,779	10,730	0	10
Truman State University	10,003	12,663	12,371	-2	24
Lincoln University	10,567	10,829	12,091	12	14
University of Missouri <sup>1</sup>	21,003	22,327	22,310	0	6
All 13 schools	14,346	15,811	15,812	0	10
All schools excluding UM campuses	9,276	10,785	10,796	0	16
HEPI				3	15
CPI				1	10
Personal Income				3	9

<sup>1</sup>Includes all 4 campuses

Source: Prepared by SAO based on DHE expenditure and enrollment data.